

Message Text

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ERDA FOR SIEVERING

E.O. 11652: N/A

TAGS: TECH, JA

SUBJECT: JAEC'S NUCLEAR FUEL CYCLE-RELATED FIGURES PROJECTION

1. ON MAR 12, 1976 JAEC ESTABLISHED NUCLEAR FUEL CYCLE PROBLEM COUNCIL TO IRON OUT NUCLEAR FUEL CYCLE PROBLEMS IN JAPAN. COUNCIL SCHEDULED TO DRAW UP INTERIM REPORT THIS SUMMER.

2. PENDING ISSUANCE REPORT FOLLOWING INFORMATION GIVEN TO ERDA BY AEC DURING RECENT VISIT CONGRESSMAN ANDERSON.

3. JAPANESE NUCLEAR POWER CAPACITY ESTIMATE ON WHICH NUCLEAR FUEL CYCLE-RELATED PROJECTIONS BASED, DIVIDED INTO THREE CATEGORIES: 1) HIGH, 2) MIDDLE, AND 3) LOW. THE HIGH PROJECTION IS AN OPTIMISTIC ESTIMATE OF THE LONG-RANGE TARGET; THE MIDDLE PROJECTION IS BASED UPON THE EXTRAPOLATED DEVELOPMENT OF NUCLEAR POWER GENERATION BY LWR'S ONLY AND OMITS ADVANCED-TYPE POWER REACTORS; THE LOW PROJECTION IS MORE CONSERVATIVE.

NUCLEAR POWER PLANT CAPACITY PROJECTION (GWE)

HIGH MIDDLE LOW

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1985 49 35 27

2000 200 150 100

THE PRESENT TOTAL INSTALLED CAPACITY OF JAPANESE COMMERCIAL POWER PLANTS IS 6.6 GWE. THEY ARE ALL LWR'S, EXCEPT ONE 166 MWE GCR.

4. THE PRESENT NUCLEAR FUEL CYCLE-RELATED FIGURES ARE BASED UPON THE MIDDLE CASE. ANNUAL, NATURAL URANIUM REQUIREMENTS (WITH CUMULATIVE SUMS IN PARENTHESES) ARE METRIC TONS URANIUM 1,700 (2,000) IN 1975; 7,000 (44,000) IS 1985; AND 25,800 (281,000) IN 2000. OTHER DATA IN ANNUAL QUANTITIES ARE AS FOLLOWS:

	URANIUM ENRICHMENT (TONS SWU)	REPROCESSING (TONS)	PLUTONIUM STOCK (FISSILE TONS)
1975	781	100	2
1985	3,530	675	25
2000	14,341	3,338	206

5. MAJOR ACTIVITIES FOR FUEL CYCLE SELF-DEPENDENCE INCLUDE URANIUM ENRICHMENT BY CENTRIFUGE PROCESS, SPENT FUEL REPROCESSING AND WASTE MANAGEMENT. ON ENRICHMENT, CENTRIFUGE CASCADE TESTING IS CURRENTLY UNDER WAY AND WILL BE FOLLOWED BY CONSTRUCTION OF A PILOT PLANT DURING 1977 THROUGH AROUND 1980, CONSTRUCTION OF A DEMONSTRATION PLANT AROUND 1981 THROUGH 1984, AND CONSTRUCTION OF AN INTERNATIONALLY COMPETITIVE COMMERCIAL PLANT AROUND 1985 THROUGH 1990.

6. THE FIRST REPROCESSING PLANT (210 TONS PER YEAR), IS NOW UNDERGOING A COLD TEST RUN AND NECESSARY MODIFICATIONS. THE PLANT IS EXPECTED TO START OPERATION IN THE SPRING OF 1978. NOTHING DEFINITE HAS BEEN DECIDED UPON ON A SECOND JAPANESE REPROCESSING PLANT. SUBJECT TO AMENDMENT OF THE LAW TO PERMIT REPROCESSING BY THE PRIVATE SECTOR, IT IS ANTICIPATED THAT THEO SECOND PLANT, 1,500-TON PER YEAR CAPACITY, WILL BE CONSTRUCTED BY THE PRIVATE SECTOR FROM AROUND 1981 SO THAT IT CAN START OPERATION IN 1987.

7. IN WASTE MANAGEMENT, A PILOT PLANT FOR HIGH-LEVEL WASTE GLASSIFICATION IS TO BE CONSTRUCTED WITHIN THE NEXT TEN YEARS, MOST LIKELY 1982 THROUGH 1985. A COMMERCIAL PLANT IS PLANNED TO BE CONSTRUCTED DURING 1987 THROUGH 1991.

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8. ADVANCED-TYPE POWER REACTORS NOW BEING DEVELOPED OR PLANNED ARE ATR, FBR AND HTGR. THE PROTOTYPE ATR, "FUGEN" (165 MWE) IS UNDER CONSTRUCTION AT TSURUGA AND IS EXPECTED TO GO CRITICAL IN 1977. LARGER ATR'S FOR DEMONSTRATION AND COMMERCIAL USE ARE UNDER EVALUATION. POSSIBLY, A DEMONSTRATION ATR WILL BE CONSTRUCTED DURING 1981 THROUGH 1985, AND A COMMERCIAL ATR WILL BE DEVELOPED FROM AROUND 1984.

9. THE EXPERIMENTAL FBR, "JOYO" (50 TO 100 MWT) IS UNDER CONSTRUCTION AT OARAI AND IS EXPECTED TO GO CRITICAL IN LATE 1976. PREPARATIONS ARE BEING MADE FOR CONSTRUCTION OF THE PROTOTYPE FBR, "MONJU" (300 MWE) DURING 1979 THROUGH 1984. POSSIBLY, A DEMONSTRATION FBR WILL BE CONSTRUCTED DURING QOY THROUGH 1990 AND A COMMERCIAL FBR FROM AROUND 1989.

10. CONSTRUCTION OF AN EXPERIMENTAL MULTIPURPOSE HTGR (50 MWE) IS PLANNED FOR 1979 THROUGH 1983. POSSIBLY, A PROTOTYPE HTGR WILL BE CONSTRUCTED DURING 1986 THROUGH 1990 AND A DEMONSTRATION HTGR DURING 1992 THROUGH 1996.

11. FOR FBR FUEL REPROCESSING, CONSTRUCTION OF A TEST FACILITY IS PLANNED FOR 1981 THROUGH 1985. POSSIBLY A COMMERCIAL PLANT WILL BE DEVELOPED FROM AROUND 1993.
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